

SUBMISSION: SENATE SELECT COMMITTEE ON JOBS FOR THE FUTURE IN REGIONAL AREAS

Inquiry into Jobs for the Future in Regional Areas

Monash Sustainable Development Institute (MSDI)

Monash Sustainable Development Institute (MSDI), at Monash University, is one of the world's leading interdisciplinary research and education institutes for sustainable development and is driven to find real solutions to some of the most significant challenges facing our world today. MSDI has particular expertise in transition planning and management, climate change research, bio-circular economies, water sensitive cities, behaviour change for sustainability and regional diversification. Our key capabilities include many of the processes that will help society understand how regional transformation can be achieved.

In 2018, MSDI received both the prestigious Banksia Award and the United Nations' Momentum for Change Award for our innovative interdisciplinary approach to catalysing sustainable development solutions.

MSDI is in the unique position of being able to harness the research, education and engagement strengths of Australia's largest university – Monash – to address the complex and interconnected challenges of building sustainable regional economies across Australia.

In 2019, we launched the **Australian Transition Academy—Australia's first transition training centre**—to provide government, industry and civic leaders with the capacities to shape regions in transition. We have also developed the **BioValley** concept, a framework for regional transformation to create employment in new and emerging markets for clean energy, bio-innovation and circular systems.

Submissions

1. We are in transition

- a) The global economy is embarking on a period of technological and social transformation. We, as an Australian community, will see our energy systems evolve, circular economies emerge, and our people moving into new fields of innovation and work. **We are in transition.**
- b) The global **transition towards more innovative, inclusive and sustainable economies** is driven by technological change, new business models, efficiency and productivity requirements, social and cultural dynamics, and the converging ecological crises of climate change, ecological degradation, land use pressures, biodiversity loss, and natural resource contamination and loss.
- c) The transition is evidenced by statistics and developments at different levels. Whilst examples are too many to reference, the impact at the employment level of sustainability transitions can be seen, for example, in the following:
 - According to the International Renewable Energy Agency (IRENA – www.irena.org) there are now a projected 11 million people working in the renewable energy sector globally, up from just over 7 million people in 2012.
 - From 2014-2024, the U.S. Department of Labor predicts wind turbine technician as the fastest-growing job in America with 108% growth expected versus 7% for all U.S. occupations and 6% for installation, maintenance, and repair occupations.

- According to the Climate Council (www.climatecouncil.org.au), as of 2018, almost 10,000 jobs were being created in the renewable energy industry across Australia with 69 wind and solar plants under construction.
- d) At the regional level in Australia, we see many examples of change: from the year-on-year record breaking solar PV rooftop installs across Australia, to the Liddell Innovation Project in Muswellbrook NSW where the coal-fired power station is being replaced by cleaner sources and new innovations, to pumped hydro energy storage attached to solar installations in Queensland, to offshore wind farm developments in Victoria, to bio-innovation through seaweed cultivation on the south coast of NSW, to the projected 100% renewable energy mix in South Australia and resurrection through green jobs of Whyalla, to the sustainable food revolution on Tasmania – we are seeing the seeds of regional transformation and the creation of thousands of new inclusive and sustainable jobs.
- e) Government, industry and civic leaders face the complex task of determining **how we develop the policies and pathways to foster successful transitions** and **how we build capacity to shape economic and societal transformation**.
- f) Perhaps the reality of regional transitions is best encapsulated by the words of one of the world’s leading sustainability thinkers, Professor Johan Rockström (Stockholm Resilience Centre, August 2017): ‘The ball is irreversibly rolling on progress towards a sustainable future. It is no longer about if we are moving to a new future or if we will transform; it is about **whether we will move or transform fast enough**.’
- g) Australia is clearly lagging behind developed nations in terms of establishing policy frameworks for regional transformation and sustainable technology development and diffusion. One might say Australia is undergoing a **‘slow transition’, characterised by technological, policy and socio-cultural lock-ins** that maintain incumbent, unsustainable regional industries.
- h) Against this backdrop, we see the more general Australian business tendency to be myopic and narrow at a time when market and societal uncertainties demand that industry leaders look longer and wider for opportunities and risks. There is a **burning platform to be leveraged, but we risk holding onto incumbent operating systems to the end, when the cost of adjustment will be greater and its effects sharper**.

2. Australia and the *Late Mover Advantage*

- a) While the inadequacy of change processes across energy, agriculture, transport and waste sectors imposes costs, this reality also positions Australia to leverage the advantages of being a **late mover**.
- b) Australia can learn from the successes, failures, processes, policies and technologies of early movers (e.g. Germany, The Netherlands, Sweden, Finland, Belgium) to create a more informed ‘roadmap’ for the innovation, resilience and development of its regional economies.
- c) **The Late Mover Advantage** could see Australia compete with and surpass the achievements of other nations in terms of renewable energy diffusion and interconnection, storage, bio-innovation, circular systems and sustainable food production; however, late mover advantage can only be realised once you have comprehensive knowledge of and partnerships with early movers and a detailed planning mechanism to ensure sectors transition together towards common objectives and on multiple fronts (energy, infrastructure, waste, agriculture).
- d) Employment creation is a function of successful and sustainable economic development. Regional economic diversification and industry growth creates new and long-term jobs. **If we get the regional transformation process right, we create jobs**.

3. Key Lessons from International and Local Experience for Future Regional Job Creation

- a) As part of our global research program, researchers from MSDI have undertaken study tours in ‘regions in transition’ across the globe – from Western Europe to North America to East Asia and the Pacific – to **understand the key drivers, capabilities, and social dynamics of successful (and not so successful) transitions**.
- b) We have explored: the dynamics of the energy transition in Germany; the rapid growth of bio-innovation precincts in Belgium; the development of bio-canteens and sustainable food system education programs in French schools; cross-sectoral collaboration and experimentation in the Dutch public sector; plans to decarbonise ports in Rotterdam and Hamburg; the jobs creation boom in Northern England on the back of renewables and bio-innovation; multi-actor networks in Canada; community energy initiatives in California; and, green chemical production in Central West China. Our aim was to cover wide-ranging themes in diverse settings using varied approaches to create a ‘shared learning platform’ and to return to Australia with key lessons for regional economic diversification and employment growth.
- c) The key lessons from these study tours are that successful regions create ‘jobs of the future’ through:
- i. **Building capacities and coalitions:** regional economic growth is founded on the capacities and skills of individual stakeholders and the ability of those stakeholders to collectively drive system-wide change. Successful regions have built capacities through targeted transition training and skills development, and built coalitions of industry, government, community, and research and training entities to deliver the agenda for regional economic and social transitions. These coalitions provide overarching governance, platforms for technology integration and experimentation and, importantly, coordinating functions in the reskilling, redeployment and growth of regional workforces.
 - ii. **Unlocking and unshackling investment:** see submission 6 below
 - iii. **Developing a ‘Vision-Scenarios-Pathways’ model:** ‘Visioning’ establishes a unifying framework for regional transformation and provides policy makers with the concepts and cases to advance the vision with regional stakeholders. ‘Scenarios and Pathways Planning’ establishes specific scenarios of what the region will look like into the future and designs transitions pathways to get there.

This ‘Vision-Scenarios-Pathway’ approach has been fundamental to all the successful regions we have studied and has enabled decision makers to **‘lead from the future’** – goals and future regional settings are crafted in consultation with stakeholders and experts, which creates ‘pull’ factors for action on new jobs and business innovation.
 - iv. **Facilitating large-scale and small-scale developments:** a key feature of modern, sustainable regional economies in Europe is the interaction between large-scale and small-scale developments/ activities. For the past 50 years, regional economies have been built around large-scale activities – such as centralised power generation – but, with the emergence of decentralisation of energy, waste and agricultural activities, **successful regions have had to work at two scales and adjust employment policy to accommodate this trend**. Modern, sustainable and inclusive regional economies must balance large-scale (e.g. solar concentrator farms) and small-scale developments (e.g. rooftop solar) and ensure that the workforce has the capabilities to work at different scales on the diversity of integrated projects. Skills in data management, microgrid interaction and supply chain logistics become critical enablers of decentralised, smart regional systems.
 - v. **Fostering ‘catalyst and magnet projects’:** successful transition regions have targeted both catalyst projects (those projects that accelerate the development of new industries) and magnet projects (those projects that attract additional investment to the region). These projects mobilise world-class research and development around sustainable technologies, processes and industries. They foster the creation of special activation precincts and innovation hotbeds that provide opportunities for upscaling concepts, piloting technologies, commercialising ventures, and testing and assessing established projects. In doing so, **these projects activate and deploy workforce innovations that**

reinforce innovation and ensure that new developments quickly move from the concept stage to the development stage.

- d) The importance of building local coalitions/ networks will be particularly evident in the Australian context. Regions are, by their nature, more dependent on locally-driven leadership. This can create an ‘anti-elite/ challenger’ mentality with an identity that mobilises and grows as an alternative to the mainstream way of doing business. The case for a Regional Jobs Authority, creating a shared learning platform between region-specific groups such as the Latrobe Valley Authority, is compelling; yet locally-based, independent regional planning coalitions are more likely to avoid political and bureaucratic capture (which often means not getting too big) – and they retain a focus on the frontiers of practice (the innovation vanguard) and pulling more people and organisations towards them. They develop portfolios of parsimonious transformation (based on adjacencies) and strategic bets (multiple moves positioning for a larger prize) to maintain cadence or a rhythm of change. They are also brutally opportunistic. Whilst an overarching body assists in coordination, region-specific bodies are perhaps best placed to adopt an ambitious transitions agenda.
- e) The **Australian Transition Academy** at MSDI can support the development of regional capacities and coalitions through our bespoke training and institutional development programs. We have distilled the lessons from transition regions globally, and built on the expertise and experience of our partners at the Dutch Research Institute for Transitions, to create a learning platform for decision makers and regional stakeholders across Australia that will drive regional transformation.

4. The Planning (and Assessment) Imperative: using the BioValley model to drive regional transformation

- a) Regional job growth and diversification will not happen by chance. At the heart of successful transition regions globally lies a willingness from all tiers of government to collaboratively establish **new regional planning processes based on clean energy, bio-innovation, smart technology, circular systems, total value capture and land use integration**. Whilst regional planning instruments and regional development bodies have existed in various forms and at all levels of government for decades, modern economies require a different lens and new tools to remain competitive and resilient. Moreover, in the absence of robust transition planning, regional economies and communities are impacted. The La Trobe Valley example, where closure and diversification planning occurred at the time of/ after coal-fired power plant decommissioning, provides a vivid reminder of the importance of planning and the impact failure to do so has on families.
- b) The planning process for new industries and jobs must be underpinned by a systems perspective, as **the coming wave of bio-circular innovations necessitates close integration of decentralised activities**. The planning system must accommodate all projects from a system-wide perspective, recognising the importance of relationships, interconnections, and diversity of system actors. Change can only be effective when it applies to and filters through the whole system.
- c) Across Europe, the new planning regimes have been complemented by rigorous infrastructure, policy and skills assessments. These assessments ensure planning has a tangible starting point to model out industry and employment growth from the establishment of baselines. In Rotterdam, where new technological and social system innovations have driven strong regional employment growth, the regional government took the following approach: **the first step in transitions is to assess current capacities and capabilities, then forecast where the economy is heading and what is required, then align the two with an ‘opportunity and gap analysis’**. As we were told on our first visit to the region: **‘securing future employment is simple really – just model what the future industrial landscape looks like including what skills will be required, assess your current skills, and then close the gap’**.
- d) **At MSDI, we have developed the BioValley model** to establish a framework for regional planning, assessment, coalition building and project development that will drive future employment opportunities across Australia. The first iteration, the Hunter BioValley, **creates a template for regional development nationally to optimise decent and sustainable job outcomes**.

The Hunter BioValley is a vision for the first fully integrated green growth and innovation region in Australia, capitalising on the global momentum behind clean energy, sustainable food and bio-innovation to create new industries, new jobs and a new path to prosperity for Hunter communities. The BioValley represents a move away from 'single technology/ project' thinking and towards a coordinated, researched and planned transformation of regional economies based on the interaction of renewables, bio-innovation, sustainable food, circular systems, and enhanced ecosystems (see below).



Realising the full potential of the Hunter BioValley will require rigorous planning, assessment, scenarios development and relationship building. To this end, we have developed a detailed program to underpin the initiative, including: the BioValley Roadmap (planning, assessment, visioning, scenarios, pathways); BioValley Network (coalitions, networks, skills development); and BioValley Projects (catalyst and magnet projects).

5. Opportunities for Regional Australia: the Future of Regional Employment

- a) For regional Australia, the employment opportunities of shifting to new, sustainable industries are considerable. Our work in international regional economies demonstrates that these opportunities include:
- i. Procurement, manufacturing, design, installation and maintenance (including high-tech [e.g. science, data management] and low-tech [e.g. fitters, mechanics] jobs) work in the clean energy sector;
 - ii. Cultivation, processing, transport and logistics, and science jobs in the bio-innovation sector;
 - iii. Environmental remediation jobs across landscapes and ecosystems impacted by past land uses;
 - iv. New jobs in the agriculture/ food sector in production, transport, retail and waste processing;
 - v. Jobs in knitting together circular economies, from supply chain and data management jobs to system integrators and network managers.

These sustainable, 'green' jobs are tangible and growing. For example, in the UK, around 78,000 jobs have been created in the bio-innovation sector over the past decade alone. Real jobs in sustainable industries.

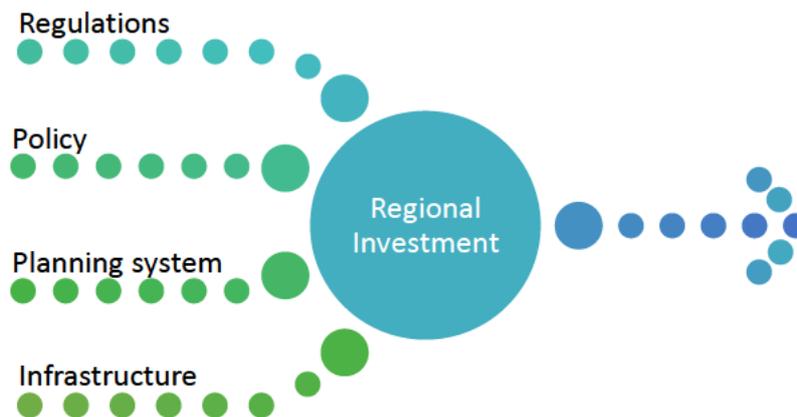
- b) In speaking with workers on the ground in biogas plants in Germany, wind farms in Scotland, biorefineries in Belgium and circular systems in Finland, it is evident that **many skills from carbon-intensive industries are transferable to new, sustainable industries**. We have met former boilermakers, mechanics and fitters at biogas plants, wind farms and battery storage facilities who came from oil and gas refineries, coal mines and coal-fired

power plants. Obviously, new skills and jobs will be required, but many of the occupations in the ‘old’ and ‘new’ economies are transferable.

- c) The International Renewable Energy Agency’s (IRENA – see www.irena.org) detailed modelling of ‘green jobs’ found that every megawatt (MW) hour of generation generates substantial person days of employment with higher levels of inclusiveness. For example:
- i. 50MW Solar Power Generation creates 229 055 person-days of employment
 - ii. 50MW Onshore Wind Power Generation creates 144 420 person-days of employment
 - iii. Women currently make up 32% of the renewable energy industry workforce, a significant improvement the 22% average reported for the oil and gas industry.
- d) In terms of capacity development and re-skilling, key capacities required across the employment spectrum in new industries mirror the interdependent nature of modern economies: greater knowledge of integrated land use, integrated systems, and ability to capitalise on circular opportunities.

6. Understanding Investment Drivers

- a) Governments do not have to spend vast sums of money in driving the transition, but they do have to understand the drivers of investment and regional economic transformation. By unlocking and unshackling investment, transitions are funded by private investment and green bonds.
- b) The technology for transitions exists and is proven; the finance for projects is ready; but, commonly, the regional investment settings mean that the **technology and its financing can’t find a home**.
- c) Investment in new innovations and industries is largely **contingent upon the regulatory, policy, planning and infrastructure environments into which the investment is made**. Successful transitions are built on the rigorous assessment of regulations, policy and planning frameworks, infrastructure services and material flows to determine suitability for renewable/ bio-circular innovation investment. This also enables regional stakeholders to forecast the changes required to facilitate future capital investment.



7. Summary

- a) Jobs growth in regional Australia will be driven by renewables and storage, bio-innovation, circular economies, environmental remediation and sustainable food systems. **The extent to which we are successful in driving this growth and ensuring it works for communities is contingent on capacity and coalition building, unlocking investment, getting our planning frameworks right, and moving projects from concept to development.**
- b) MSDI – through the Australian Transition Academy, BioValley concept, and our ClimateWorks and BehaviourWorks programs – **stands ready to support those individuals and organisations at the forefront of policy development and advocacy on sustainability transitions by providing leading practice training and strong partnerships with national and international transition agencies and stakeholders.**